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Implications of the principle of involvement in learning design at elementary school level

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ABSTRACT

A learning process requires direct involvement of students to develop their potential to prepare them in seeking opportunities and managing challenges of the coming smart society 5.0. However, involvement of students physically does not guarantee an active learning happen in the classroom. This article will define the principle of involvement in learning, describe two learning approaches that can engage students in learning physically, mentally, emotionally, and intellectually, and explain the implications of these learning approaches in concrete learning for educators and students. This article used a literature review as a qualitative method to describe the principle of involvement through two learning approaches, namely John Dewey's Learning by Doing Theory and Barrows and Tamblyn's Problem-Based Learning (PBL) Method. Hence, the readers can see how important the principle of involvement in learning and its implications as the teacher's ability to serve not only as a facilitator, but also as an activity manager who is able to direct, guide, and encourage students towards predetermined learning goals. Therefore, direct involvement of students in the learning process is absolute because those experiences aim to alter and enrich them in acquiring the 21st century skills needed.

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1. INTRODUCTION

The era of super-smart society 5.0 is a vision for the future that has been echoed by Japan since 2019 with the hope that human life everyday will become more comfortable and sustainable by utilizing technologies such as big data, Internet of Things (IoT), artificial intelligence (AI), and robots' fuse into every industry and across all social segments. This new era that will come will certainly bring its own challenges and opportunities for educators who must prepare students to not only survive through these changes, but even lead these changes. As for students, this era of society 5.0 requires them to improve their skills in communication, leadership, endurance, curiosity, comprehension, and literacy skills (Foreign Policy, 2022). Perdana, et al. (2021) suggests that educators or policy makers should understand student behaviour before implementing learning that leads to achieve 21st century competencies. Therefore, a learning process that involves students is intentionally needed so that students have the sensitivity and attitude to face the changing world that will occur. Students must be able to understand that teachers are no longer the main source of knowledge, but each student is in the learning community who is able to master knowledge from various sources, not only from books, but also from the internet, various technology & information platforms, and curriculum developments globally, which in Indonesia is interpreted as independent learning (Direktorat Sekolah Dasar, 2021).

The principle of direct involvement can be implemented in learning to foster direct involvement of students physically and non-physically to achieve the 21st century 4C skills that students needed, namely Creativity, Critical Thinking, Communication, and Collaboration. This principle is also needed so that students feel they are important and valuable in the classroom so that they can enjoy the learning process. Edgar Dale (in Dimiyati & Mudjiono, 2013) said that "good learning is learning through direct experience". Learning with direct experience is not just sitting in class where the teacher is explaining the lesson, but how students are directly involved in the learning process. Learning activities applied by teachers mean learning experiences for students. In this regard, teachers must understand the pattern of student learning experiences because the goal of 21st century learning is to help every child communicate efficiently, collaborate effectively, exercise creativity, and practice critical thinking while consuming and producing content that connects them to their world personally in meaningful and relevant ways for the upcoming era of industry 5.0 (Mourtzis, et al., 2022).

Raymond (2012; in Masters, 2013) through the Pyramid of Learning illustrates that if in the classroom the teacher only teaches in the form of lectures, which means students only listen, then students can only catch 10% of what they hear from the lesson. However, if a teacher presents material by involving students directly in the sense that students are actively working on group assignments and reporting the results, students will be able to remember up to 90% of what was done. Therefore, direct involvement in the learning process has a very big influence on improving learning outcomes and even student success in the future. However, it needs to be explained that the involvement is not only in physical form, even more so, emotional involvement with cognitive activities in affective formation and in the formation of psychomotor values (Dimiyati & Mudjiono, 2013).

To be able to involve students physically, mentally, emotionally, and intellectually in the classroom, educators should design their learning systematically by carrying out learning activities by considering the characteristics of students and the characteristics of subjects. Hence, the involvement of students in these active learning approaches will be able to prepare them to face the challenges of changing world and take advantage of the

opportunities that arise because they have been prepared with qualified skills since a very young age. Therefore, this paper will discuss the importance of the principle of involvement through two learning approaches, namely John Dewey's Learning by Doing Theory and Barrows and Tamblyn's Problem-Based Learning (PBL) Method. Thus, readers can understand what is meant by the principle of involvement or experience in learning and the implications of these learning approaches in learning design for educators and students.

2. METHODS

This article used a review of literature as a qualitative method to describe the principle of involvement through two learning approaches, namely John Dewey's Learning by Doing Theory and Barrows and Tamblyn's Problem-Based Learning (PBL) Method. Subsequently, this article provides the implications of these learning approaches in the real classroom situation for both teachers and students. A literature review is a written summary of articles, books, and other documents that describes the past and current state of knowledge about a topic, organizes the literature into topics, and documents a need for a proposed study (Creswell, 2012, p. 105).

The important procedures and techniques involved in conducting a literature review in this article using four phases (Snyder, 2019) which are (1) designing the review, (2) conducting the review, (3) analysing the information, and (4) writing the review. First, the designing phase begins by defining the topic to map and select the topic, defining the research question of the topic, identifying the types of information needed, and preparing the keywords for conducting the research. Second, there are three types of information from the text gathered there are data, statement, and theory. This article reviews related statements from the competence scholars, officials, or researchers, and theory and definition about process, condition, or relation between the variables in this article. Third, this phase allows the researchers to conduct the reading analysis and make the synthesis by stating the topic that being discussed in the paragraph, adding the sources, or using paraphrases to state the idea, and then interpreting the significant supporting quotes to the topic of discussion. Finally, make the sentences explaining how the sources relate to each other and evaluate the discussion topics for the last phase.

3. RESULTS AND DISCUSSION

3.1 Results

The best learning is learning through direct experience where students do not just observe directly but they must reflect the knowledge, be directly involved in actions, and be responsible for the results. This kind of learning is beneficial because it can directly determine the extent to which a skill or competency has been successfully mastered by students. Only by practicing, we as educators or students themselves know whether they have understood and mastered a lesson or skill, especially if the lessons presented are complex and integrated.

"Learning by doing" is a learning activity that involves both physical and mental. In addition, it does not only develop cognitive aspects but also its impact on affective. This happens because when students learn there is a relationship between themselves and the subject they are studying. There are things or experiences that students must discover on their own that students will not understand and master certain skills just by being told. The Problem-Based Learning model is an innovation in learning because in the PBL model, students' thinking abilities are truly optimized through a group or systematic work process,

so that students can empower, hone, test and develop their thinking skills on an ongoing basis. Based on this, the PBL model can hone students' mindsets in developing ideas so that students can solve problems and apply them in real life.

3.1.1 Learning by Doing Theory by John Dewey

The characteristics of "learning by doing" method began as a form of dissatisfaction or "protest" against the didactic methods previously applied in traditional learning systems that took place in schools (Dewey, 1907; Dewey, 1963). Historically, learning in the classroom was teacher-centred where the phrase "chalk and talk" became the main teaching method that was considered optimal. Classes can be described as the process of printing "forms" or results that must be the same. Learning conditions are formed in such a way by gathering students in one room, being taught by one teacher, then the only visible learning activity is "delivering". Therefore, it is certain that the only actor who is most active in the class is the teacher. The role of students is limited to responding collectively in the form of uniform answers to questions posed by the teacher. Learning is carried out more often according to habits, student seats are arranged based on formal rows, and often what the teacher conveys is only abstract statements that distance school life from real life in society (Handlin, 1959: 29). Therefore, learning is nothing but a memory process of data that cannot be directly understood by students.

Dewey completely avoids these ways of learning and views that the learning process is carried out to develop students as whole persons. Dewey himself has the principle that the teacher's way of teaching is directed entirely at efforts to produce active students (Brubacher, 1966: 288). Learning is something that is active, with learning methods designed by teachers leading to two main goals, namely achieving understanding and motivating learning. The most important thing in Dewey's view is that educators should bring classroom life as close as possible to the outside world. Society is rapidly changing because of urbanization and industrialization (Dewey, 1907: 18-22; Dewey, 1963), and of course these changes are not always good. Teachers should prepare students to anticipate these changes. Students are equipped with the skills to be sensitive to reality and learn how to deal with it.

Educators should try to end the shackles of schools that isolate students from real life and transform schools as institutions that are closely related to family and society. Schools need to develop a student's caring attitude towards the home environment, neighbours, economic and professional life that develops in the community, all of which can function the school's role more effectively (Dewey, 1907: 38; Dewey, 1963). Family and community life that is directly connected to the student experience can facilitate communication between teachers and their students while providing students with a complete view of the true benefits of learning. Learning that comes from students' experiences with their families and communities makes students familiar with what they are learning.

Learning design in these conditions can be successful because it is directly related to the experiences that students have. Thus, Dewey gives us the view that education is not something that is forced on children. Education is more of a continuous and sustainable process of growth and development that originates in students even before students enter school life. Therefore, in teaching, it is necessary to pay attention to learning conditions to instil the ability to read, write, and use intelligence in understanding something real and meaningful as a provision so that students are better prepared to face their life experiences (Moore, 1930). Learning thus becomes a process that deals with real situations. Students who are accustomed to making things have learned and learning at school plays a role in

giving more meaning to the abilities of these students. For example, students who learn to choose their class president find that they are familiar with electoral methods in general elections that are usually carried out by village, district and even state circles. Schools play a role in selecting each subject or learning material that can direct students to obtain satisfactory achievements. Knowledge such as geography, history, citizenship (politics), and mathematics, for example, is acquired through continuous reconstruction of student experience. When students absorb and understand what they are doing, children can immediately interpret it broadly and deeply and get useful things from what they are doing. Furthermore, interest in completing a job is directly related to interest in the process, namely "thinking things out" both intellectually and theoretically. The whole educational process is thus described as a process of learning to think through solutions to real problems.

Students' drive to learn is likely to be accelerated and enhanced if the setting and learning activities are based on real life. Teachers of course try to design a learning curriculum that describes data sourced from students' life experiences and how in developing the curriculum, academic disciplines or lessons are structured with the aim of enriching students' experiences (Entwistle, 1970: 148). As stated by Dewey (1933: 13-14) about the meaning of learning that "real learning will occur when someone is faced with a dilemma as something that must be found a way out". Therefore, the curriculum design presented to students is recommended by Dewey in the form of a problem-based learning design. This assumption is closely related to the development of learning psychology as a source of learning theory. The statement of learning theory that develops problem-based learning departs from the belief that a person can only learn optimally when they do it (Entwistle, 1970). For example, skills such as praying, reading, writing, conducting biological research, reporting on historical investigations, diagnosing diseases, calculating, or reading mathematical formulas, sewing, gardening, or cooking, all of which can only be mastered to the fullest by practicing them (Dewey, 1907: 21-22; Dewey, 1963).

A student may not be able to make a history report or history article if he only reads historical sources or pays attention to the teacher's writing. He may understand the good ways of writing history, but without practicing them he will never know if he is capable of writing history. Not to mention the stages of writing history that he must master, such as the skills of digging historical sources, historical criticism, and historical interpretation. All that can only be understood by students when students practice doing it. The teacher can also explain which sources are primary or secondary in history, historical actors, what is meant by interpretation, or historical explanation, but what is given is only a relative term and its meaning in the real context can only be understood in practice. Allow children to explore on their own to find meaning in learning experiences that require thinking and the results of these explorations may differ from those of the teacher, as directed by Dewey (1972) with the term "trying" meaning: "we do something, and it does something to us in returns". We hope that students find meaning in their learning when they try to make something.

When students do something, it is not just a mere psychomotor case. "Learning by doing" is a learning activity that involves both physical and mental. In addition, it does not only develop cognitive aspects but also its impact on affective. Learning is a matter of how to manage time, how students direct their concentration to the object of the lesson, how students learn under pressure to find something new. For example, when a student must conduct an interview with a historical actor, the student certainly needs to prepare certain

things so that the interview is successful. Skills like this must be explored by students and take place in the context of learning. This means that in the context of learning students find new knowledge, and most importantly they find new knowledge when doing something.

The rationale for learning by doing is that learning must give meaning to students in their lives. The goal of educational activities is to prepare students to be able to grasp the meaning of what they are learning and understand what they are learning. If not, then learning is nothing but an empty thing, an attempt to collect data, an activity that has no application in life outside of school. Student-centred learning is an effort so that students fully understand what they have gained in learning. The results of his study became a character for him to determine his attitude in life. The knowledge gained in learning is the knowledge gained for their efforts and hard work so that it becomes personal knowledge and becomes part of them. That way they understand how to use and utilize their knowledge (Entwistle, 1970: 204). The conclusion is that students will not understand and master certain skills just by being told. Therefore, "learning by doing" is important as a way for students to gain knowledge as belonging and part of themselves.

3.1.2 Problem-Based Learning by Howard Barrows & Robyn Tamblyn

Barrows (1980; in Barrett, 2006) defines Problem-Based Learning (PBL) as learning that results from the process of working towards understanding the resolution of problems encountered for the first time in the learning process. Meanwhile according to Tan in Rusman (2013), problem-based learning is a learning model that challenges students to learn how to learn by working in groups to find solutions to real-world problems. The given problem is used to bind students to curiosity about the learning in questions. Problems are given to students before students learn concepts or materials relating to problems that must be solved (Daryanto, 2014: 29). Problem-based learning as a learning method, built with the idea of constructivism and student-centred learning approach. When using problem-based learning, teachers help students focus on solving problems in a real-world context that will encourage students to think about problem situations when students are trying to solve problems. This learning model is carried out through student collaboration in small groups using a student-centred learning approach where the teacher acts as a facilitator and uses real-life situations as the focus of learning. Students will work in groups to solve real and complex problems which will develop problem solving skills, reasoning, communication, and self-evaluation skills through problem-based learning.

Arends (2014) explains that there are five stages in problem-based learning, namely (1) introduce students to problems; the teacher conveys the learning objectives to be achieved, checks students' perceptions by asking questions about the previous material, and provides motivation, (2) organize students to learn; the teacher organizes student learning in groups, (3) assist with independent and group investigations; the teacher encourages students to collect data and conduct experiments, (4) develop and present the work; the teacher provides opportunities for students to present the results of their discussions and assist in the exchange of opinions, and (5) analyse and evaluate the problem-solving process; teachers help students analyse and evaluate their thinking processes in investigative and intellectual skills used in problem solving and reflecting on what has been learned. While Sanjaya (2013) added one more stage taken in learning problem-based learning which is collecting data before testing the hypothesis and formulating problem solving.

The operational definition of Problem-Based Learning is as follows (Barrett, 2006):

1. The first student is given a problem.

2. Students discuss the problem in a small group PBL tutorial. They clarified the facts of the case. They define what the problem is. They exchange ideas based on prior knowledge. They identify what they need to learn to solve problems, what they don't know (learning problems). They reason through the problem. They define an action plan to work on the problem.
3. Students involve in independent study of their learning problems outside of the tutorial. This can include libraries, databases, the web, resource persons, and observations. They return to PBL tutorials to share information, teach colleagues, and work together on problems. They present their solution to the problem. They review what they have learned from working on the problem. All who participate in the process involve self, peer, and tutor reviews of the PBL process and reflection on each other's contributions to the process.

Designing a PBL curriculum means reconceptualizing the curriculum in a way that emphasizes on (Conway & Little, 2000; in Barrett, 2006): (1) selection of content from exercise, (2) the concept as a curriculum organizing structure expressed as learning outcomes for all units, (3) Process as content, (4) graduate outcomes are not subject-based outcomes. While the way to become a great Problem Based Learning facilitator, a teacher must have the following teaching strategies (Barrett, 2006): (1) show enthusiasm in teaching, (2) forgetting the lecture method, (3) tolerating silence in class, (4) ask students to talk to each other and not to you, (5) make sure the group agrees on the learning problem before the group ends, (6) promote accurate use of current information resources as students research their learning problems, (7) given the learning outcomes of cases and courses, and (8) build a good learning environment for groups.

3.2 Discussion

Implications of the Principle of Involvement in Learning

The place of a student in the class cannot be replaced by another person. Therefore, the direct involvement of students in the learning process is absolute (Kurniawan, 2014). As an implication, students are required to do their own learning assignments given by the teacher. With this involvement, they will gain experience. The forms of behaviour that are implications of the principle of direct involvement are all activities carried out in schools, whether they are in the form of inter-curricular or extracurricular activities. Although these activities do not guarantee the realization of the principle of activeness in students, with this involvement it is expected to be able to realize the activeness of students in the learning process.

3.2.1 Implications of the principle of direct involvement or experience in learning for educators

Of the many roles of teachers in learning both inside and outside the classroom, there is a role that cannot be replaced by technology, which are direct interaction in the classroom, emotional bonding between teachers and students, character building and teacher modelling. Azhary & Ratmanida (2021) in their journal suggest that in preparing students for the era of society 5.0, teachers are expected to (1) improve their ability in incorporating 21st century skills (communication, collaboration, creativity and critical thinking) in various learning activities planned in their lesson plan, (2) implement well 21st century skills (communication, collaboration, creativity and critical thinking) in the classroom based on learning activities planned, (3) have sufficient time to teach the students especially in

promoting 21st century skills with full support from the school in providing sufficient facilities in classrooms and professional development programs for teachers.

Direct involvement of students is not only physical because it does not guarantee active learning. Teachers must be good at designing learning in such a way that students can be directly involved not only physically but also mentally, emotionally, and intellectually. The behaviour as an implication of the principle of direct involvement for teachers is as follows:

1. Designing more learning activities on individual and small group learning.
2. Emphasize direct experimentation by students compared to demonstrations.
3. Using media that are directly used by students.
4. Give assignments to students to practice exemplified psychomotor movements.
5. Involve students looking for information or messages from information sources outside the classroom or school.
6. Involve students in summarizing or concluding learning message information.
7. Involving students in learning directly, in this case not just observing directly but having to live, be directly involved in actions, and be responsible for the results.
8. Involve students to learn actively, both individually and in groups by solving problems.

Student involvement in learning is not only physical involvement, but also emotional involvement. Involvement with cognitive activities in achieving knowledge acquisition in appreciation and internalization of values in the formation of attitudes and values. Also, when conducting exercises in skill building, the teacher must act as a guide and facilitator when learning takes place. In addition, the implication of this principle for teachers is the teacher's ability to act not only as a facilitator who make students learn independently to foster student activity to explore more deeply their knowledge (Hasanah, et al., 2018), but also as a manager or activity manager who is able to direct, guide and motivate students towards the learning objectives that have been set. The implications of the principle of direct involvement for educators can be in the form of designing individual and small group learning activities, using media that can be directly used by students, giving assignments to practice exemplified psychomotor movements, involving students in seeking information from the source, and so on.

Almulla (2020) stated that there are five main approaches to implementing PBL method to produce student engagement in the classroom, which are through collaborative learning, disciplinary subject learning, iterative learning, and authentic learning activities. Almulla (2020) also recognized two implications of the use of a PBL approach in learning and the learning process supports students by understanding the role that teachers must play to encourage students in utilizing a PBL approach which are considered significant to engages students in learning. Meanwhile, learning by doing method is believed can enhances student participation and very useful to build student's in-depth understanding of the course. However, this approach cannot be implemented by itself. Hence, the teacher should guide and incorporate additional methods because the diverse experience of learners might hinder the effectiveness of this approach. Therefore, the use of additional methods like problem-based learning, flipped classroom, and reflective practice will be more effective to engage students in learning (Ball and Pelco, 2006; in Mekonnen, 2020).

3.2.2 Implications of the principle of direct involvement or experience in learning for students

Learning is an important activity that must be carried out by everyone to be able to master something. Learning can be defined as an effort or activity that aims to make

changes in a person, including changes in behaviour, attitudes, habits, knowledge, skills, and so on. Sa'ud (2020: 171) suggests the following learning objectives:

1. Learning aims to make changes in oneself, including behaviour. For example, a small child who has not entered school behaves spoiled, selfish, whiny, and so on. Then after a few months of entering elementary school, his behaviour changed to that of a child who was no longer a cry-baby, more independent, and able to get along well with his friends. This shows that the child has learned from the new environment.
2. Learning aims to change habits, from bad to good. For example, changing smoking habits to not smoking, eliminating dependence on drinking, or changing the habits of children who often wander, can be done with a learning process.
3. Learning aims to change attitudes from negative to positive, disrespect to respect, hate to love, and so on. For example, a teenager who had always been against his parents could be changed to be more respectful and obedient to his parents.
4. Learning aims to improve skills or abilities. For example, in terms of sports, arts, services, engineering, agriculture, fisheries, shipping, and so on. A person who is skilled at playing badminton, ball, boxing, and other sports is largely determined by perseverance in studying and training seriously. Likewise, the skills of playing guitar, piano, dancing, painting, carpentry, making handicrafts, all require serious, diligent, and diligent study.
5. Learning aims to increase knowledge in various fields of areas. For example, a child who initially cannot read, write, and count, becomes able to learn.

According to Dimiyati and Mujiono (2013: 23) this learning goal is important to be understood by teachers and students themselves. In instructional design the teacher formulates specific instructional goals or student learning objectives. Meanwhile, according to Suprijono (2014: 5), learning objectives are varied; some learning objectives are explicit, and some are in the form of instructional. This goal is a logical consequence of students living a certain learning environment system. From the description above, learning is a very important human activity and must be carried out during life, because through learning humans can make improvements in various matters concerning the interests of life. In other words, humans can improve their destiny, achieve their goals, and get wider opportunities to work by learning. Therefore, students in participating in learning must also be directly involved. The implications of this principle of involvement require students to not only do the tasks given at school, but with their direct involvement they can gain a lot of experience, for example making reports from observations, solving case studies, conducting campaigns, and so on.

Hasanah, et al. (2018) said that the problem-based learning method trains students to find their own concepts based on real life problems with inquiry skills to form an essential concept of students' knowledge. This problem-based learning method starts from students realizing a problem and then students' process the problem to be solved through several experiments. Therefore, students' independence is very involved in the problem-based learning method which makes this method an effective way to develop 21st-century capabilities of students by promoting critical thinking and problem-solving, increase academic performance, interpersonal communication, information, and media literacy. This method also influences a positive attitude of student's future profession, such as cooperation, leadership and teamwork, innovation, and creativity which can also enhance student's learning experiences under supervision of the teacher (Almulla, 2020).

Raviv (2022) stated that today's learners should be curious people who have a strong desire to know, understand, and influence others. Students who are aware of their own perceptions and attitudes can define and realize their goals. Learners also must acquire skills and strategies for finding and processing information, asking questions, combining different information sources, presenting arguments, critically evaluating information, and learning through the media as the vital competences for the coming smart society 5.0. During their study, students are also required to nurture social relationships, creativity, self-managed learning, computational perspectives, and collaborative skills. Hence, educators should help students to have the ability to transfer those skills from a learning context to a real-world context, and to implement them successfully as one of the main traits of 21st century skills.

5. CONCLUSION

Direct involvement of students in the learning process is absolute because student's will gain their experiences in the classroom. The important of the principle of direct involvement can be carried out through two learning approaches, namely John Dewey's John Dewey's Learning by Doing Theory and Barrows and Tamblyn's Problem-Based Learning (PBL) Method. These approaches would help educators in designing a learning activity to stimulates students to be actively involved in learning activities in the classroom. Therefore, students will be able to extend their potentials to prepare themselves in facing the changes that may occur in the future.

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